

Partnerships to Promote CHP for Hospitals

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DER Peer Review

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Dale Woodin – Deputy Executive Director
American Society of Healthcare Engineering
of American Hospital Assoc.



Network of Healthcare Engineers

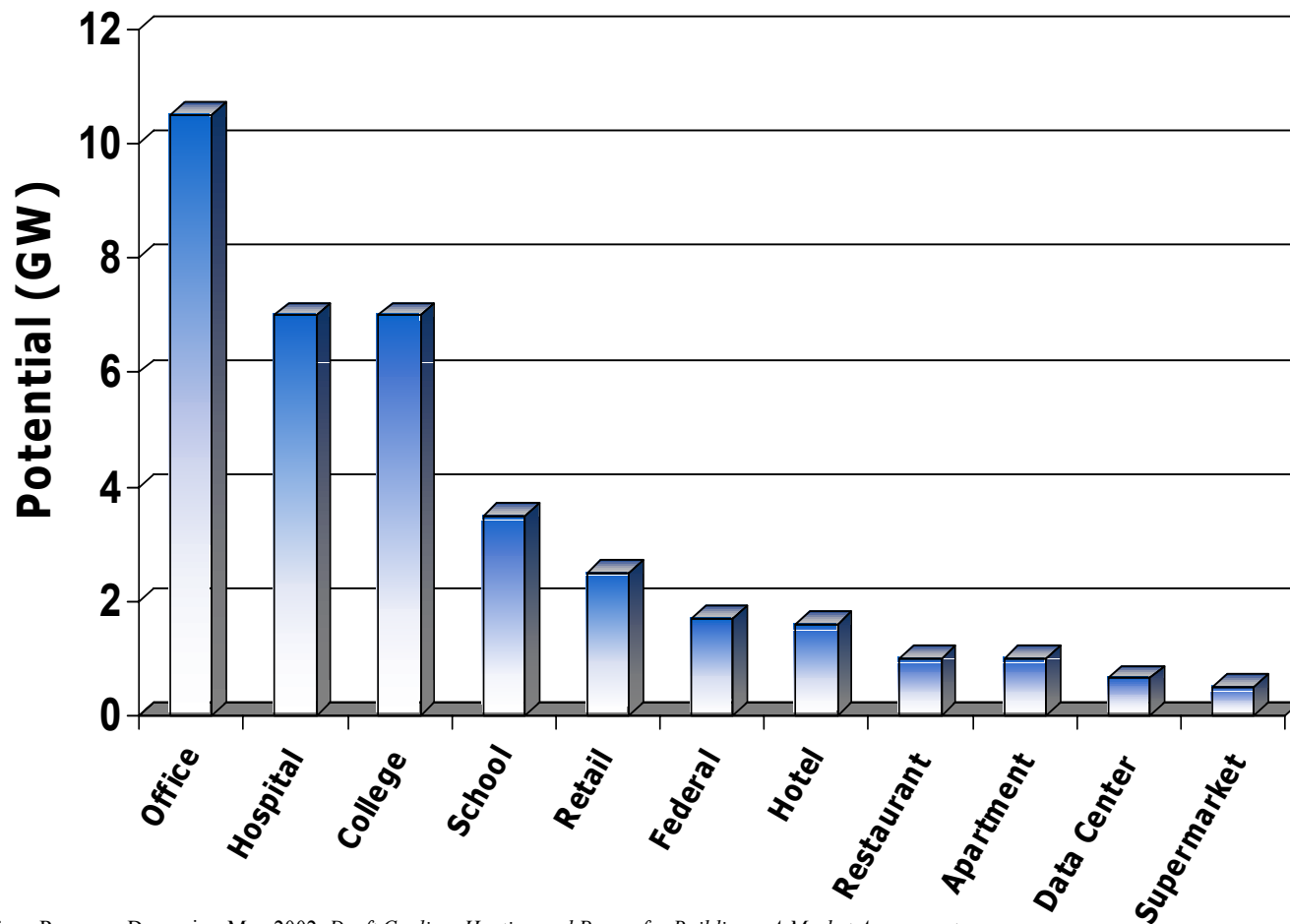
- Mission: “the advocate & resource for continuous improvement in the healthcare engineering and facilities management professions.”
- 6,300 members
- Facility Managers, VP Construction/Plant Operations, CEO's
- PDC & Annual Conferences: >2,000 participants
- Committees guide hospital “best practices”
 - Facility Management
 - Education
 - Safety, Security, Environmental
 - Planning, Design and Construction

DE/CHP Program Outreach to ASHE

Oak Ridge National Laboratory Team

- *American Gas Foundation*
- *Avalon Consulting*
- *D & R International*
- *Gas Technology Institute*
- *Midwest CHP Application Center, University of Illinois, Energy Resource Center*
- *Scheibel/Halaska*

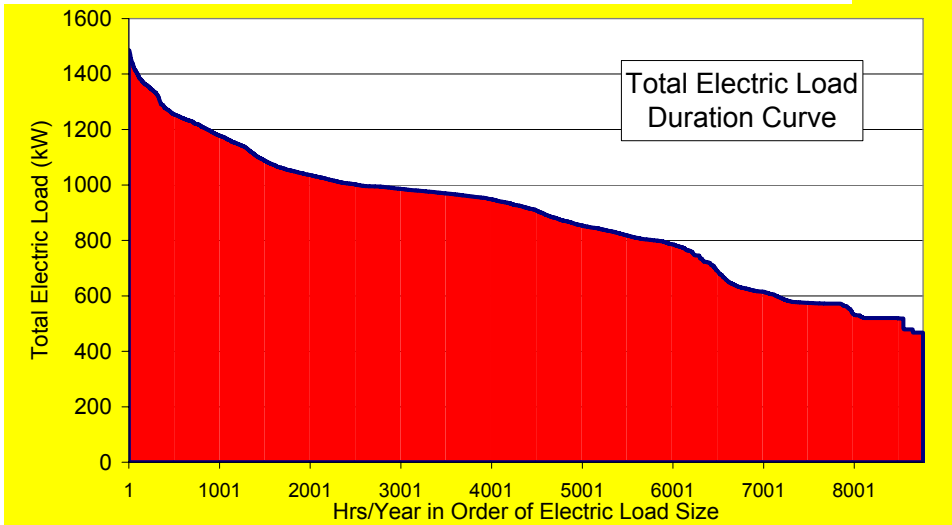
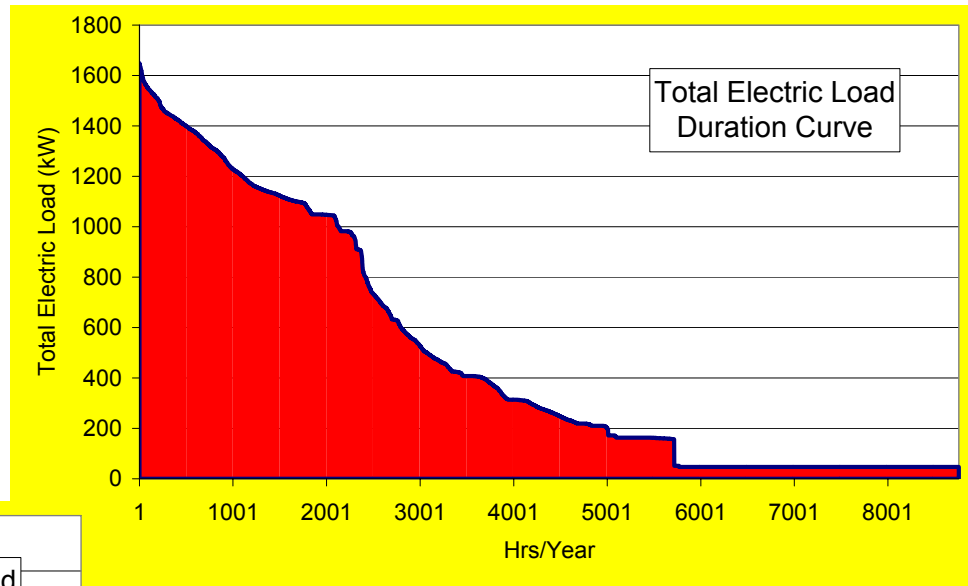
Hospitals: key CHP market segment



Data from Resource Dynamics, May 2002, *Draft Cooling, Heating and Power for Buildings: A Market Assessment*

Hospital Power Consumption is More Constant than Other Commercial Loads

Hospital 300,000 SF
24 x 7 x 365



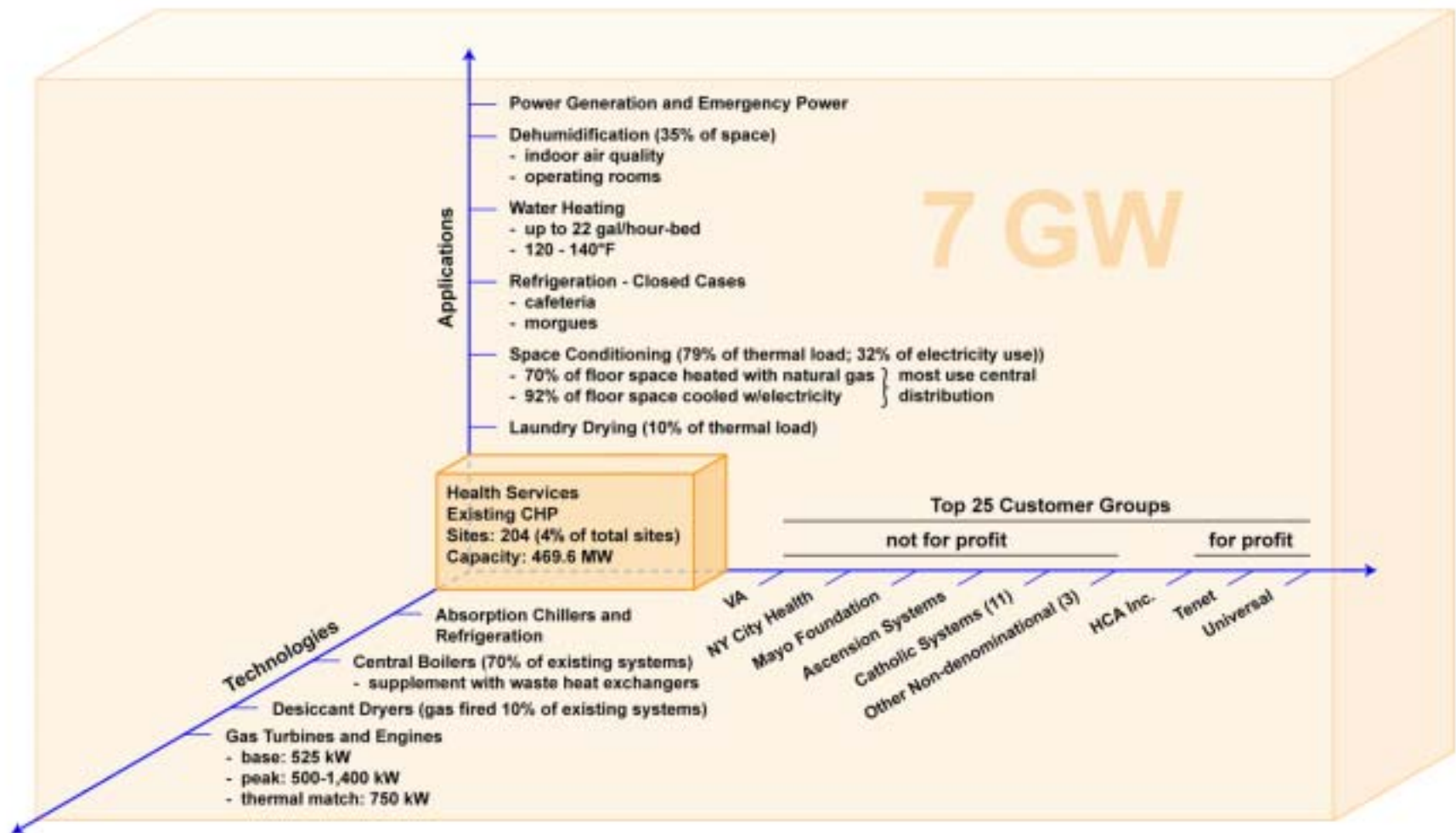
Office Bldg 300,000 SF

Reference: William Ryan, Ph.D., UIC

CHP in Hospitals Today: >200 existing sites, with 470 MW, just 4% market penetration



Market Analysis: 7GW of CHP potential, CHP technology matches needs of for-profit/non-profit facilities



Hospitals interested in CHP Installations, but hurdles exist

Market Drivers

- Expansion required
 - Under built in 1990's
 - Aging demographics
- New role in community
- 6,000 U.S. hospitals
 - ~0.38 quad/yr of potential savings
- Deregulation introduces uncertainty in long-term project economics

Market Needs

- Knowledge about:
 - CHP benefits especially at executive level
 - Technology advances
- Decisions influenced by:
 - CFO
 - VP of Operations
 - Facility managers
 - Consulting engineers
- Incentives

POWER PROBLEMS

- Taxed electric grid means trouble quickly spreads



Jacqueline Larma / AP

BLACKOUT: Lessons Learned

- Hospitals designed to minimum standards
 - Hill Burton Act – modernize hospitals (in disrepair due to depression & WWII)
- Infection Control – negative & positive
- Cooling/dehumidification/ventilation
- High tech diagnostic and analysis systems, electronic patient records

Partnership Reaches End-Users

DE/CHP-ASHE Partnership

- ASHE Advisory Council
- Build on ASHE/Energy Star relationship
- Hospitals with CHP (case studies)
- State outreach through CHP Application Centers

Exhibit and Panel Session

- Audience participation
- Expert panelists

Desiccant Humidity Control Van

- Includes CHP display
- Gave away >80 ASHRAE Humidity Control Design Guides



Midwestern CHP Applications Encouraged

- Midwest Application Center increasing CHP visibility at state level
- 5 of 8 State Energy Offices working with hospital associations (co-funded outreach)
- Builds on initial success of State of Illinois and City of Chicago

Case Studies Available

Advocate South Suburban Hospital

*Beloit Memorial Hospital
Children's Hospital*

*Hospital in Washington State
Lake Forest Hospital*

Little Company of Mary Hospital

Northwest Community Hospital

Presbyterian Homes

Resurrection Hospital

St Francis Hospital

*University of California - Davis
Medical Center*

Market research (phone interviews and survey) identifies decision makers needs

- Plans for future growth: opportunity to adopt CHP
- Improved energy reliability & quality with flexibility to operate during grid outage:
 - Supplement emergency power
 - Operate revenue generating equipment
- Desire to be positioned as community/industry leader to attract staff and patients
 - Energy security
 - Environmental impact
- Energy cost savings



OVER 200 HOSPITALS AND
HEALTHCARE FACILITIES NATIONWIDE ARE
ACHIEVING PEAK PERFORMANCE
FROM THEIR ENERGY SOURCE.

ASHE BOOTH #271

Visit our booth to learn how combined heat and power (CHP) systems can lower your hospital's energy costs and improve air quality and comfort.

Tour our mobile humidity control trailer adjacent to the booth to discover how desiccant dehumidification systems can contribute to peak energy performance.

Attend our breakfast session on:
TUESDAY, JULY 15
2:15 – 3:15 PM
"Combined Heat and Power: Changing The Way Energy Is Produced and Used"

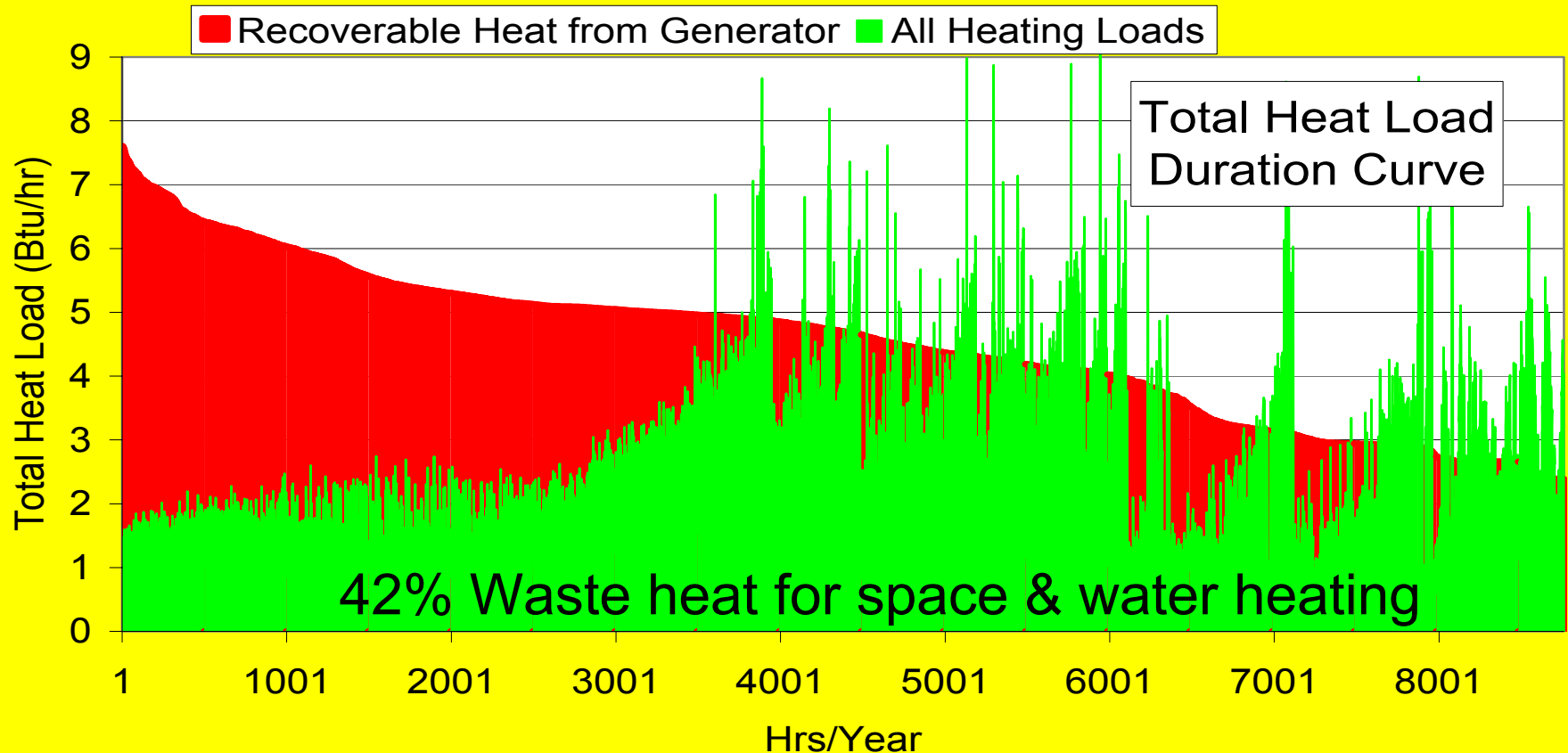
OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

www.eere.energy.gov/chp/hospitals

Base-load Hospital CHP: Improve Power Quality and Reliability(Interactive CHP Primer on web)

- Reduce momentary outages
- Provide backup electricity
- Provide backup cooling

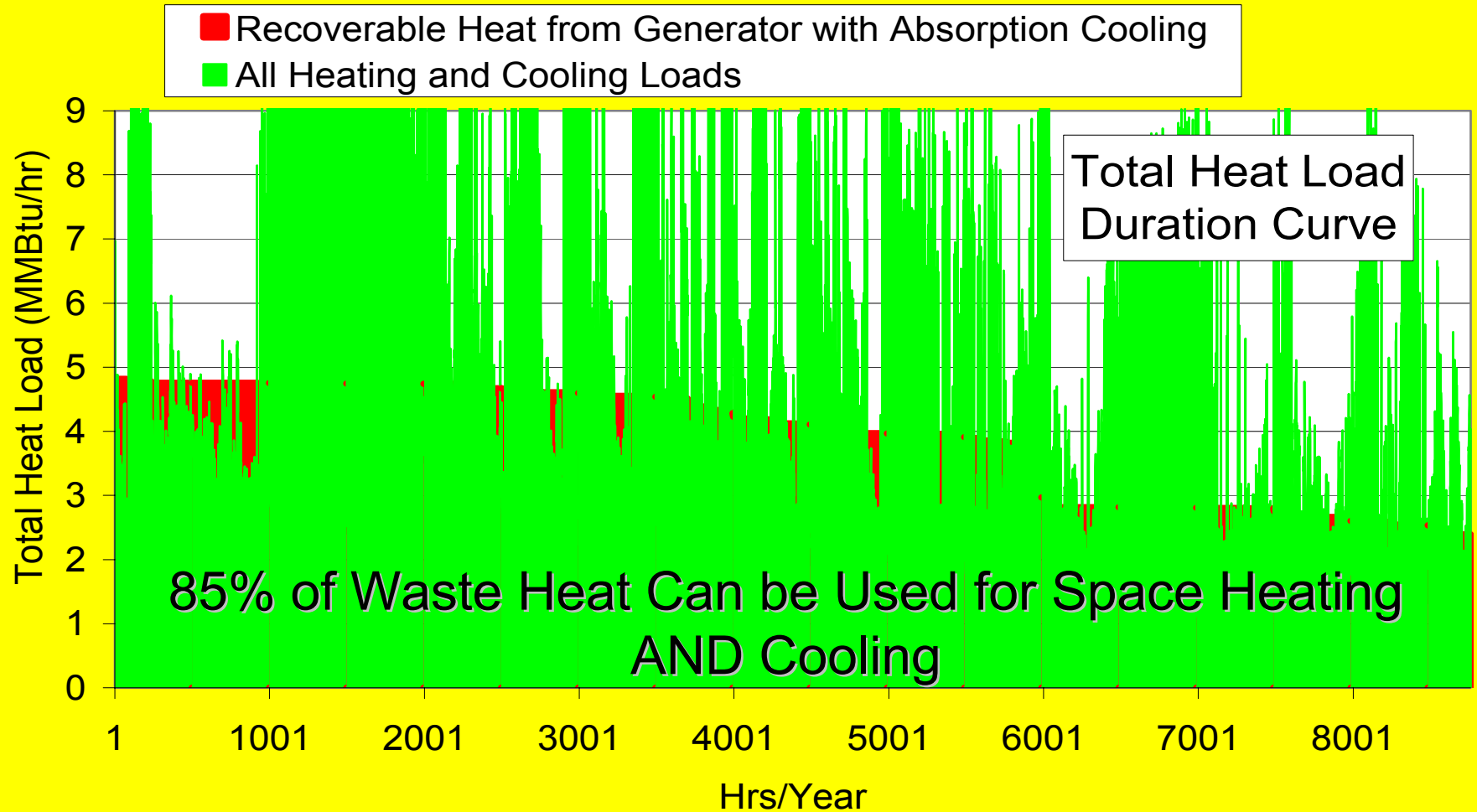
Reference: William Ryan, Ph.D., UIC



Base-load Hospital CHP: Optimize Energy Use

- Mix electric and absorption chillers to reduce boiler use
- Match heat rejected by generator with a thermal load
- Desiccants improve comfort in surgical suites

Reference: William Ryan, Ph.D., UIC



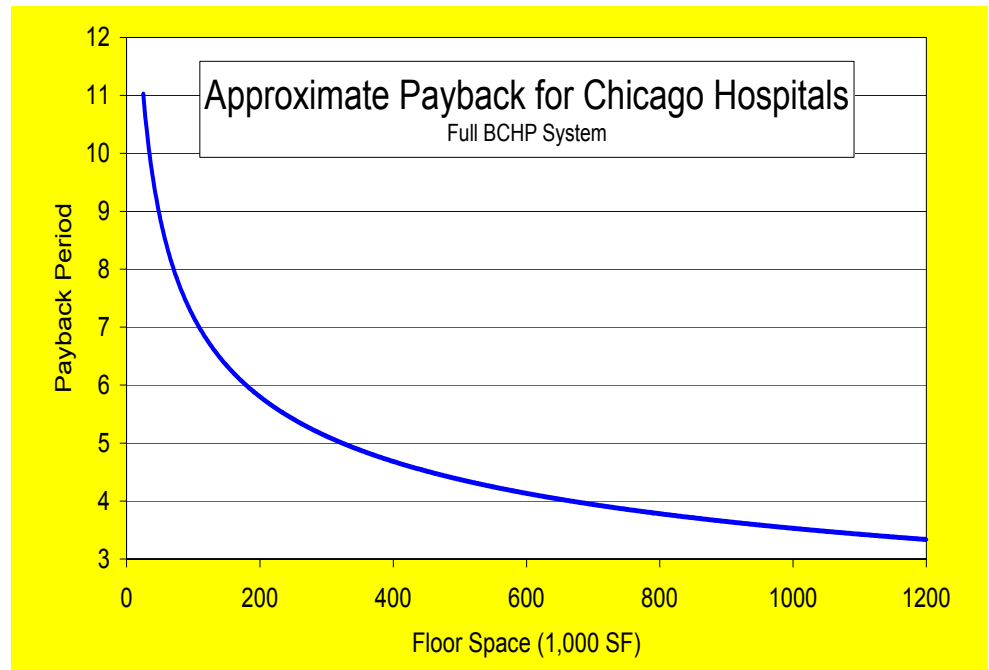
Develop Business Case for Chief Executives

Reduce energy costs:

- Cost savings associated improve energy efficiency and reducing momentary outages
- Offer energy flexibility and reduce exposure to energy price volatility

Community Leadership:

- Improve environmental quality because of higher efficiency energy use



Reference: William Ryan, Ph.D., UIC

CHP Tomorrow—Barriers Removed and Products Improved



Link to DE/CHP Packaged Systems:

- Up to 30% lower capital cost
- 1/3 less time and lower cost for installation
- Standardized interfaces
- Integration helps optimize facility energy supply

Active DE/CHP-ASHE Partnership

- Interview and build on experiences of 204 hospitals with CHP by forming a CHP Hospital user group
- Analyze data from 150-300 EPA Energy Star Hospital Surveys for potential CHP applications.
- Evaluate AHA construction data base to identify hospitals that are expanding. Encourage capital improvement could include DE/CHP.



U.S. Department of Energy
**Energy Efficiency
and Renewable Energy**



OAK RIDGE NATIONAL LABORATORY

Maximize hospitals' use of DE/CHP

- Collect and analyze hospital energy data using ORNL screening tool for CHP applications
 - Calibrate screening tool and build database
 - Provide results to CHP Application Centers
- Build network of CHP advocates
- Showcase demonstrations selected and conducted because of RFP awards